

**PRODUCTIVITY AND TRADE IN AFRICAN BREADFRUIT (*Treculia africana*):
ANALYSIS OF BENEFITS FOR RURAL DEVELOPMENT AMONG SMALL HOLDERS IN AHIAZU
MBAISE L.G.A IN IMO STATE, SOUTHEASTERN NIGERIA.**

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Abstract

The study was conducted to examine productivity and trade in African breadfruit (*Treculia africana*): and further analyze its benefits for Rural Development among small holders in Ahiazu Mbaise Local Government Area (LGA) of Imo State, Southeastern Nigeria. Data were collected using structured questionnaire from sixty three (63) randomly selected breadfruit markers (traders) in the area. Data collection included the socio-economic characteristics of the respondent, abundance and distribution patterns of *Treculia Africana* within the respondents farmland as well as the trend of market demand-supply of *Treculia africana* in the area. Data collected were analyzed using descriptive statistical tools (Means, percentages). Students t-test were used for mean separation. Results show that the majority of respondents were between ages of forty to fifty years old and the largest household size recorded 63.5 %. Table 3 shows no significant difference in the correlation between number of baskets of processed breadfruit and number of stands of breadfruit, whereas there was an observed significant difference in the quantity processed for sale in farmland 1 (T-value>6.315). Higher percentage (13.86 %) of respondents make between N40,000.00 and N50,000.00 from sale of processed seeds against the processed per month. 11.1 % of the rural people had low benefits while 23.8 and 46.0 percent of respondents had high and very high level of benefits. Breadfruit production is a very lucrative business which is scale neutral and have the potential of reducing rural poverty and unemployment.

Introduction

African bread fruit, *Treculia africana*, (Family: Moraceae) is a food tree crop of high nutritional value. In Nigeria, the plant is mainly grown in the eastern states where it is normally planted some distance away from residential areas to avert the danger posed by its heavy, large fruits. The fruits are not traditionally harvested but allowed to ripen and drop from the tree (Mabo and Olusegun, 1988; Mbakwe, 2005). The seed is rich in palatable cooking oil. Literature has revealed that on commercial scale, breadfruit can yield 10.23% of oil (Ekpeyong, 1980; Nwaigbo et al, 2008).

Gathering of ripe fruits from the wild and harvesting ones from orchards of farm households is a common farm activity during heavy fruiting period in parts of Southern Nigeria (Okafor, 1985). At present, cultivation, gathering and processing of African breadfruit provides a chain of subsistence agricultural activity which still is relatively non-mechanized but provides rural jobs especially for the women.

Breadfruit is a traditional food whose consumption is culturally accepted across diverse ethnic communities. Okeke et al, (2008) documented that the food is an expensive delicacy eaten either boiled alone or with other foods and could be roasted and eaten even with palm kernel or coconut as snacks. Furthermore, it is seen as a good source of income with good nutrient value for diabetic patients. Its seed flour is used as thickener and in baking respectively (Fassi et al, 2004; Nwabueze, 2006).

Document produced by Nigeria Institute of Horticulture (NIHORT) in 2008 reported increasing price of African breadfruit in Nigerian markets. In the document for instance, 3.8kg of the processed seeds sell for as much as seven hundred and fifty thousand (N750,000). This means that trading on breadfruit cannot only provide employment for persons who engage in it, it can fetch a reliable income to persons who find it difficult to gain employment in conventional industries. The use of non-timber products to support and/or augment household needs including income has been emphasized (Adepoju and Salam, 2007). Planting a hectare of about 100 stands of breadfruit can potentially fetch an annual income of about eight hundred and eleven thousand, three hundred and forty Naira to a household as some documents posit.

In Nigeria, there is a perceived growing opportunity for *Treculia africana* (breadfruit) market. The number of persons (both middle and low class member) observably involved in the business of *Treculia africana* appears to be on the increase suggesting possible lucrateness of the trade. If so, there could therefore be commensurate income earnings and possibility for provision of livelihood improvement for practitioner. However, there is still a lot of poverty amidst rural population in the face of the above untapped opportunity around this region. This can be linked to the attention given to research

and development particularly as it affects the economics of small and medium scale production activities. Some documents show that significant proportions of residents in southern as well as eastern regions of Nigeria are engaged in trade of leafy vegetable, fruit, tree products and other non forest products (NTFPs).

Treculia africana (breadfruit) business is seen as one that is not without or with little empirical evidence for good financial returns to many even though it is an important proteineous food with high economic value. There is need to generate data for marketing system which could offer support and assistance to policy makers with a view to popularizing and standardizing the trade, productivity and profitability for development especially to benefit rural practitioners.

Information obtained from this study will aid economic researchers, policy makers, extension managers and foresters to a better understanding of the prevailing economic status of breadfruit products in the area. This will also evoke prevalent constraints to rural marketing and highlight possible avenues or means by which they can be minimized or eliminated.

Methodology

The study was conducted in Ahiazu Mbaise L.G.A of Imo State. Ahiazu Mbaise L.G.A is one of the areas in Imo State Nigeria endowed with tree crops including *Treculia Africana*, yet it is not known if the people have been able to harness and exploit this tree crop effectively as a means to cushion the effect of poverty in the rural areas. The area is made up of two clans-Ahiazu and Ekwereazu clans. with population of about 170,192. Imo State Planning and Economic Development Commission (2000)

The L.G.A is bounded on the North by Isiala Mbano L.G.A, on the South by Aboh Mbaise L.G.A and Ezinihitte Mbaise L.G.A, on the East by Ihite Uboma L.G.A and on the West by Ikeduru L.G.A all in Imo State. The study area experiences the same season that is prevalent in most tropical regions namely rainy and dry season with little spill of harmattan. Residents in the area are mainly farmers growing food crops such as maize (*Zea mays*), plantain (*Musa Spp*), cocoyam (*colocasia esculenta* and *xanthosoma mafafa*). Other crops grown in the area include fruit and vegetables such as orange (*Citrus sinensis*), guava (*Psidium guajava*) etc. Within the above clans, Ahiazu Mbaise has a total of 24 autonomous communities in line with current administrative structuring in the area.

The population of the study area comprised indigenous/resident producers, marketers and traders of breadfruit who operate in local markets in the area. In the locality, three in every five persons produce *Treculia* seeds for sale in local markets (field report). There are four markets where the above operators (marketers and traders) buy and sell the product. The four markets with their different days of operation are located in Ogbe community, Oru community, Umuokirika and Mpam community.

A random sample of one hundred marketers/traders (respondents) was selected from the four (4) markets in the study area (twenty five from each market representing each community). Data collection was with the aid of semi-structural questionnaire.

The data collected included the socioeconomic details of the respondents, abundance and distribution patterns (stand density) of *Treculia africana* within the respondents' farmlands across the area and trend of market demand-supply of *Treculia* in the study area. A multidimensional poverty assessment procedure which adopts an ex-facto design to derive the dynamic nature of well-being or quality of life of an individual was used to determine the benefits from *Treculia* on well-being of the respondents. The multidimensional well-being assessment offers the investigator the opportunity to evaluate the degree of interaction between two or more variables of interest on single statement. Hence the index value was grouped into categories as low effect, average, high and very high. As the index value of the respondents moves towards zero (0.0) it shows that the benefits are low and when the index value tends towards 1.0, the benefits are shown to be very high. Data collected were analyzed using descriptive statistical tools (means, percentages and mode) correlation and students t-test were used for mean separation were applicable.

Results and Discussion

Socioeconomic characteristics of the respondent marketers in the study area are presented in Table 1. The result indicated that 19.0% of the respondents are males while 81.0% of the respondents are females. This shows that females dominate in the trade and marketing of breadfruit in the area. This is in addition to their domestic household activities. Women are known to play a dominant role in forestry and agricultural production in Nigeria, processing, marketing and final utilization of forest products while men perform the pre-planting and planting tasks that occupy a small part of production process. Anyandiji (2008).

Table1 :Socio economic data of respondents.

Variable	Category	Frequency	Percentage	Mode
Sex	Male	12	19.0	
	Female	51	81.10	Female
Age	<30	2	3.1	
	30-40	16	25.4	
	41-50	37	58.6	
	51-60	7	9.6	41-50
	>60	1	3.2	
	Total	63		
	Single	1	1.6	
Marital Status	Married	62	98.4	Married
	Devoiced	-	-	
	None	-	-	
Education	Total	63		
	Primary	22	34.9	Secondary
	Secondary	41	65.1	
	Tertiary	-	-	
Household Size	Total	63		
	<5 (small)	17	27	
	5-10 (medium)	40	63.5	
	>10 (large)	6	9.5	Medium
	Total	63		

Table 1 shows that majority of the respondents are between (41-50) years of age, followed by people within the ages of 31-40. The involvement of almost all age brackets in the trade indicate the neutrality of the trade and its likely compatibility within the culture of the people in the area. It is obvious that several stages are involved in production and trade of *Treculia Africana* ranging from gathering, processing, storage, packaging, transportation, marketing and administration. Burt and Wolfley (2009). Hence members of the family often constitute the labour force.

In terms of household size, medium sized household of 5 – 10 persons per household which covered 63.5% of the respondents are the majority. Of course the more the number of persons in a household, the higher the level of productivity. Several authors reported larger household size as a proxy to labour availability which may influence adoption of new technology and positively, as its availability reduces labour constraints. (Teklewold *et al.*, (2006).)

The density of *Treculia Africana* stands owned by households within their farmlands was assessed as shown in Table 2.

Result shows that 98.4% of the respondents have stands of breadfruit within their farmlands. Farmland (11) has the highest percentage of 44.4% while stands of *Treculia Africana* within farmland one (1) has percentage of 33.3%. The average stands of breadfruit owned within the household farmlands in both farmland I and II is 2.0. This means that across farmlands owned within the region which have breadfruit stand, there is likelihood of finding an average of 2 stands of breadfruit. Onyema (2014) observed that households across Igboland own farmland of an average size of 1.5ha. if what is in the report of Onyema (2014) is to be related to this, then, there is about 2 stands of breadfruit trees within every 1.5ha area owned by households.

Table 2: Number of stands of breadfruit owned within household farmlands.

	Variable	Frequency	Percentage	Mode
Own breadfruit stands within farmlands.	Yes	62	98.4	Own farmlands containing breadfruit
	No	1	1.6	
Number of stands within own farmland I	1	4	6.3	Two and Three
	2	21	33.3	
	3	21	33.3	
	4	13	20.6	
	5	2	3.2	
	6	1	1.6	
	Mean	2.0		
Number of stands within own farmland II	1	-	-	Four
	2	-	-	
	3	20	31.7	
	4	28	44.4	
	5	8	12.7	
	6	3	4.8	
	Mean	2.0		

Table 3: Summary of correlation between number of baskets of processed breadfruit and number of stands of breadfruit within own farmland of respondents.

		No of baskets offered for sale	No of stands of breadfruit within farmland I	Number of stands of breadfruit in farmland II
No of baskets offered for sale	Pearson correlation	1	0.071	0.203
	Sig. Level		0.583	0.123
	N	63	62	59
No of stand of breadfruit within farmland I	Pearson correlation	0.071	1	-0.100
	Sig. Level	0.585		0.453
	N	62	62	59
No of stand of breadfruit within farmland II	Pearson correlation	0.123	0.453	
	Sig. Level	0.123	0.453	
	N	59	59	59

Table 4: Summary of t-test for comparison between number of stands of *Treculia africana* in farmlands and number of baskets processed for sale by marketers.

Pair	Number of baskets offered for sale* Number of stands of breadfruit in farmland I	Mean	Standard deviation	Standard error mean	T-value	Df	Significant Level
Part 1		1.54835	0.24518	.24518	6.315*	6	0.000
Part 2	Number of baskets offered for sale* Number of stands of breadfruit in farmland II	-0.06780	1.40030	.18230	-372	58	0.711

Value * significant of 0.05 probability level.

Table 4 above shows that farmland one where households one stands of breadfruits, there was an observed significant difference in the quantity (number of baskets) processed for sale by the

markets (T-value.>6.315). This is not so with that observed in farmland two which has significant level of 0.711.

Table 5: Financial returns on monthly basis:

Category (#)	Processed	Percent Processed %	Unprocessed	% unprocessed
10,000 – 20,000	15	9.45	26	16.38
20,000 – 30,000	13	8.19	20	12.06
30,000 – 40,000	13	8.19	11	6.93
40,000 – 50,000	22	13.86	06	3.78
Above 50,000	---		---	

A summary of correlation between number of baskets of processed breadfruit and number of stands of breadfruit within farmlands owned by the respondents (Table 3) was done to relate the produce from the stands of *Treculia africana* with that processed for sale. Results show that there was no significant association between each pair of parameter considered. Whereas the result of T- test shows that there was a significant difference in the quantity of processed seed for sale from farmland one when compared with farmland two, table 4. Processed *Treculia africana* seeds gives more financial returns than unprocessed seeds. This was shown in Table 5. where higher percentage (13.86%) of respondents make between N40,000.00 and N50,000.00 from sale of processed seeds against the unprocessed seeds on monthly basis. The tedious nature of processing *Treculia africana* made people prefer the processed seeds, yet the number of people

in the trade when compared with the consumers is minimal. This may be because of the people's perception of its high nutritional value. Breadfruit acceptability studies shows that the crop is highly accepted and that consumption of its porridge is preferred to rice, or other meals of its substitutes in the study area (Enibe 2007 a,b.). Table 6 shows results of well-being indices on the respondents. The distribution of respondents across the index interval shows that they were distributed equally across the four categories. 11.1% (percent) of the rural people had low benefits while 23.8 and 46.0 percent represents high and very high level of benefits. This shows that majority of the rural population depend on this forest resources for their well-being. This agrees with the findings of Aju (2014) who reported that a wide range of forest products, which rural people gather, produce and trade, contribute to income generation and employment.

Table 6: Assessment of degree of benefits from *Treculia Africana* on well-being of the local communities.

Influence on Well-being	Interpretation	Frequency	Percent
0.0 – 0.25	Low	07	11.1
0.26 – 0.50	Average	12	19.0
0.51 – 0.75	High	15	23.8
0.76 – 1.00	Very high	29	46.0

CONCLUSION AND RECOMMENDATION

Productivity and trade in African Breadfruit (*Treculia africana*) was studied. The study revealed that marketers own between 1 – 6 stands of breadfruit in their farmlands. Study also revealed that breadfruit production and marketing is a lucrative business despite the tedious nature of production process. Therefore constraints towards improvement in this area should be identified and addressed so as to encourage more people in the production chain of *Treculia africana*. This will go along way in reducing poverty and providing employment for the people in the rural areas.

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